

## PATENT ABSTRACTS OF JAPAN

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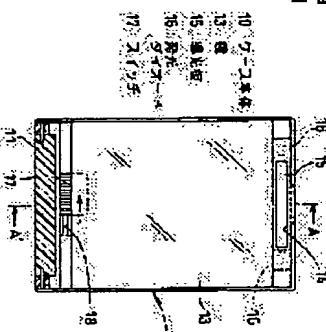
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### (54) PORTABLE MIRROR

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a portable mirror with a compact lighting having sufficiently brightness.

SOLUTION: In the portable mirror having a mirror 13 in a case 10, it is provided with a roughly belt-shaped optical guide plate 15 extending along the rim part of the mirror 13, a light emitting diode 16 for irradiating the optical guide plate 15 with light and a switch 17 for turning ON or OFF the light emitting diode 16.



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## CLAIMS

[Claim(s)]

[Claim 1] The pocket mirror implement characterized by having the abbreviation band-like light guide plate which is the mirror implement of a pocket type with which the mirror was held and is prolonged along the edge of a mirror in a case, the light emitting diode for irradiating light at this light guide plate, and the switch for making the above-mentioned light emitting diode turn on and switch off.

[Claim 2] The pocket mirror implement according to claim 1 with which the acrylic board with which the cross-section [ of V characters ]-like slot was formed in the rear face, and the laminating of the reflecting layer was carried out to the rear face as the above-mentioned light guide plate is used.

[Claim 3] The pocket mirror implement according to claim 2 with which the vertical angle theta of a V groove is set as 85-95 degrees in the slot of the shape of a cross section of V characters of the above-mentioned light guide plate.

[Translation done.]

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## DETAILED DESCRIPTION

## [Detailed Description of the Invention]

[Field of the Invention] This invention relates to the pocket mirror implement with lighting whose face etc. can be clearly seen even place [dark].

[0001]

[Description of the Prior Art] Although the details of a face are observed or the result condition of makeup is checked from the former, the hand mirror 1 as shown in drawing 8 (a) is used in many cases. Moreover, as shown in drawing 8 (b), the mirror implement 2 which became a fold-up formula is also used to serve also as portable.

[0002]

[Problem(s) to be Solved by the Invention] Since the above-mentioned hand mirror 1 and the mirror implement 2 of a fold-up formula can be carried anywhere and can see a face on that spot, they are convenient, but since a face may be reflected darkly and known night and daytime also, either, when dark in a perimeter, there is a problem that it can be used only in a place with lighting.

[0003]

[0004] Then, in the mirror implement 2 grade of a fold-up formula, although making a lighting means build in near the mirror is examined, since it is difficult to secure brightness sufficient in the minimum tooth space, the actual condition is that what has good user-friendliness is not obtained.

[0005]

This invention was made in view of such a situation, and it is the mirror implement of a pocket type, and it is compact and moreover, it sets off of the pocket mirror implement equipped with the lighting or sufficient brightness as the purpose.

[0006]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention is the mirror implement of a pocket type with which the mirror was held in the case, and makes the 1st summary a pocket mirror implement equipped with the abbreviation band-like light guide plate prolonged along the edge of a mirror, the light emitting diode for irradiating light at this light guide plate, and the switch for making the above-mentioned light emitting diode turn on and off.

[0007]

Moreover, especially as for this invention, a cross-section [ of V characters ]-like slot is formed in a rear face as the above-mentioned light guide plate also in it. And make into the 2nd summary the pocket mirror implement with which the acrylic board with which the laminating of the reflecting layer was carried out is used for the rear face, and let the pocket mirror implement with which the vertical angle theta of a V groove is set as 85-95 degrees in the slot of the shape of a cross section of V characters of the above-mentioned light guide plate also especially in them be the 3rd summary.

[0008]

[Embodiment of the Invention] Below, the gestalt of operation of this invention is explained. [0009] Drawing 1 shows the gestalt of 1 operation of this invention. This pocket mirror implement consists of a case body 10 holding a mirror made from plastics, and a lid 12 made from plastics connected free [ closing motion ] for minding a hinge region 11. The side elevation

in the condition of having opened the lid 12 is shown in drawing 2. 13 is a mirror.

[0010] Moreover, as shown in drawing 3 R>3 (a lid 12 is omitted except for the part which constitutes a hinge region 11), the band-like notch hole 14 which extends along the edge of a mirror 13 is formed in the mirror 13 bottom (a side with a hinge region 11 is made into the "bottom"), and the same band-like light guide plate 15 is arranged in the mirror maintenance side of the case body 10 by the inside. And the light emitting diode 16 of the longitudinal

direction both ends of the above-mentioned light guide plate 15 within the case body 10 which irradiates light toward a light guide plate 15 is formed in near, respectively. Lighting and putting out lights of the above-mentioned light emitting diode 16 are performed by the slide-type switch 17 prepared in the mirror 13 bottom.

[0011] In addition, if it makes slide to left-hand side like illustration from the condition which slid along with the protruding line 18 prepared in the case body 10, and was brought near by the right end as the above-mentioned switch 17 is shown in drawing 4 which is the A-A' sectional view of drawing 3, the terminal attached in the rear face of a switch 17 connects with the electrode of the electrode plate (not shown) attached in the case body 10, and light emitting diode 16 will emit light.

[0012] And since the light from light emitting diode 16 reflects in the light guide plate 15 interior and is emitted from the front-face side of a light guide plate 15, the part enclosed by the notch 14 shines and the face towards a mirror 13 is illuminated brightly.

[0013] The thing to which 90-degree sense can be changed into and the light irradiated as the above-mentioned light guide plate 15 from the light emitting diode 16 formed in the side can be made to emit efficiently from a side front is desirable. As such a light guide plate 15, although transparency plates, such as an acrylic board, a polycarbonate plate, and a glass plate, are used, for example, especially, it is points, such as cost, endurance, and brightness, and it is suitable to use an acrylic board.

[0014] And as shown in drawing 5, in the rear face of 15a, such as the above-mentioned acrylic board, it is desirable to stick the reflective film 21 on the rear face in which the cross-section [ of V characters ]-like slot 20 was formed in, and the above-mentioned cross-section [ of V characters ]-like slot 20 was further formed in order to carry out outgoing radiation of the light which carried out incidence from the side to a side front efficiently, and the side face (the field by the side of the space back and field of a near side) in which face to face is not stood against light emitting diode 16.

[0015] The above-mentioned cross-section [ of V characters ]-like slot 20 is C02 which condensed with the lens. It can obtain by irradiating laser light at the rear face of 15a, such as an acrylic board, and carrying out melting scattering of the constituent of a plate. And it is suitable to set the magnitude of the vertical angle theta of a slot 20 as 85-95 degrees from the point of the reflective effectiveness of light. Moreover, although based also on the thickness of 15a, such as an acrylic board, or the whole magnitude, it is suitable to set depth D of a slot 20 as 100-150 micrometers.

[0016] And as shown in drawing 6 (a), the above-mentioned slot 20 may be reverse conic slot 20 which the each became independent of, and as shown in this drawing (b), it may be 20" of reverse square drill-like slots. Moreover, you may make it these precisely located in a line, without opening spacing. Furthermore, as shown in this drawing (c), even if it makes it cross-section [ of V characters ]-like concave streak 20a located in a line crosswise [ of 15a, such as an acrylic board, ] at proper spacing, it does not interfere. In addition, as these slots 20, 20', etc. are prepared by high density, the brightness of light guide plate 15 front face becomes high, and is more desirable, but, since the part and cost become high, it is suitable to set up so that adjacent pitches, such as a slot 20 and 20', may usually be set to 300-500 micrometers.

[0017] Moreover, as a reflective film 21 stuck on the rear face and side face of the above-mentioned light guide plate 15, a film, foaming polyester film, etc. which vapor-deposited aluminum and silver are suitably used for one side of polyester film. And it is suitable for the thickness of the reflective film 21 to set it as 110-200 micrometers.

[0018] In addition, in this pocket mirror implement, the tooth space 23 (refer to drawing 4) for containing two lithium coin cells 22 for energizing to a light emitting diode 16, as shown in

drawing 7 is provided for the rear face of the case body 10, and closing motion of that part is attained with the lid 24.

[0019] According to the pocket mirror implement of the above-mentioned configuration, the notch 14 is formed along the rising wood of a mirror 13, and since a light guide plate 15 shines by high brightness in response to the light of light emitting diode 16, even if the area is small, it becomes very bright lighting from the inside. Therefore, even if it is night and a place dark in a perimeter, a face can be illuminated brightly and a face can be checked in a mirror 13 on that spot.

[0020] In addition, in the above-mentioned example, if the acrylic board obtained by the extrusion casting method is used also in the same acrylic board when using an acrylic board for a light guide plate 15, since it will be easy to perform recessing by laser light, it is more suitable than what was obtained by other processes (the glass cast method, injection molding method, etc.).

[0021] Moreover, although the reflective film 21 was stuck on the rear face of acrylic board 15a which constitutes a light guide plate 15, and the predetermined side face in the above-mentioned example in order to reflect in a side front the light which carried out incidence from light emitting diode 16, the reflective film 21 is not stuck, but it makes it the rear face of acrylic board 15a to carry out direct aluminum vacuum evaporation etc., and you may make it form a reflecting layer in it. In this case, it is suitable for the thickness of a reflecting layer to set it as 100-200 micrometers.

[0022] Furthermore, in the above-mentioned example, as a switch for making a light emitting diode 16 emit light, although the slide-type switch 17 was formed, unless the compactability of the whole pocket mirror implement is spoiled, no matter the type of a switch may be what thing, it does not interfere.

[0023] Moreover, it is not necessary to necessarily prepare two pieces, and in the above-mentioned example, although light emitting diode 16 is formed two right and left, even if it prepares one of the two only one piece, it does not interfere. Of course, the combination of light emitting diode 16 and a light guide plate 15 can be established not only by the rising wood of a mirror 13 but by proper arrangement. When tooth-space-allowances are in the periphery section, it does not interfere, even if it establishes two or more combination of light emitting diode 16 and a light guide plate 15.

[0024] Furthermore, although the mirror 13 in which the plane view configuration of the whole pocket mirror implement is held in a rectangle at the case body 10 is also a rectangle in the above-mentioned example, as long as it does not limit especially the configuration of a case or a mirror and it is a portable configuration, it may be what kind of configuration.

[0025] And although the mirror 13 was held on the case body 10 and this was made the wrap configuration with the lid 12 in the above-mentioned example, this invention may be applied to that to which the pocket mirror and the compact for makeup are made to serve a double purpose. The example is shown in drawing 9. The crevice 31 for cosmetics maintenance is formed in the case body 30 side, and the cosmetics 32, such as foundation, are filled up with this example in it. And on the cosmetics 32 with which it filled up, the sheet-like puff 33 for foundation spreading is carried.

[0026] On the other hand, the mirror 13, the light guide plate 15, the light emitting diode 16, and the switch 17 are formed in the lid 34 side by the same arrangement as the aforementioned example (refer to drawing 3 ). It can make up on that spot, illuminating a face with the lighting from a light guide plate 15, without according to this example, moving till the place which has lighting facilities specially, even if the surroundings are dark.

[0027]

[Effect of the Invention] As mentioned above, the light guide plate with which the pocket mirror implement of this invention shines in response to the light of light emitting diode along the edge of a mirror is prepared. Therefore, since it is not only the compact configuration which the whole tends to carry, but according to this pocket mirror implement it can illuminate a face brightly with the above-mentioned lighting and there is no turbulence in \*\*\* even if it is night and a place dark in a perimeter, it has the advantage that a face can be checked on that spot.

[Translation done.]

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#### DESCRIPTION OF DRAWINGS

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##### [Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing one example of this invention.

[Drawing 2] It is the partial cross-sectional side view showing the condition of having opened the lid in the above-mentioned example.

[Drawing 3] It is the explanatory view showing the important section of the above-mentioned example.

[Drawing 4] It is the A-A' sectional view of above-mentioned Drawing 3.

[Drawing 5] It is the explanatory view of the light guide plate used for the above-mentioned example.

[Drawing 6] Each of (a), (b), and (c) is the explanatory views of the modification of the light guide plate used for the above-mentioned example.

[Drawing 7] It is the explanatory view showing the rear face of the above-mentioned example.

[Drawing 8] (a) shows an example of the conventional hand mirror and (b) shows an example of the conventional pocket mirror implement.

[Drawing 9] It is the perspective view showing other examples of this invention.

[Description of Notations]

10 Case Body

13 Mirror

15 Light Guide Plate

16 Light Emitting Diode

17 Switch

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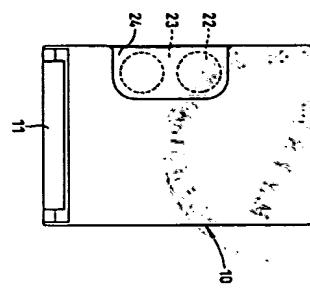




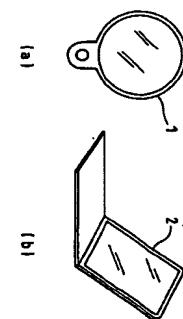
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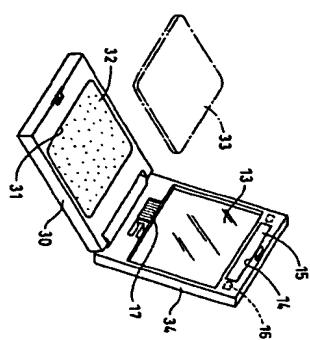
[図7]



[図8]



[図9]



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